

Art Unit: 2800

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12132005
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1. (Currently Amended) A method of forming two level structures in a semiconductor substrate, the method comprising:
forming lines of different widths having a first floor;
oxidizing the ~~lines~~~~wafer~~ until lines of thinner width are substantially fully oxidized and wider lines are not fully oxidized;
etching the oxide to expose the first floor; and
etching the exposed first floor deeper into the substrate to form a second floor.
2. (Original) The method of claim 1 and further comprising removing the oxide from the lines.
3. (Previously Presented) The method of claim 1 wherein the oxide is etched using anisotropic etching.
4. (Original) The method of claim 1 wherein etching the oxide comprises using a CHF_3 anisotropic reactive ion etch.
5. (Original) The method of claim 1 wherein the semiconductor substrate is single crystal silicon.
6. (Original) The method of claim 1 wherein the first floor is etched deeper using deep reactive ion etching.
9. (Currently Amended) The method of claim 1 wherein the ~~lines are~~ wafer is oxidized

using thermal oxidation.

10. (Currently Amended) A method of forming multiple level structures in a semiconductor substrate, the method comprising:

forming structures in the substrate having different widths;
oxidizing the ~~structures~~wafer until structures of a desired width are substantially fully oxidized and ~~wider structures are not fully oxidized~~;
etching the oxide to expose a floor of the substrate; and
etching the floor deeper into the substrate to form a next floor.

11. (Original) The method of claim 10 and further comprising removing the oxide and repeating oxidizing, etching and etching to form a further level of the multiple level structure, wherein successively wider line widths are oxidized.

12. (Previously Presented) The method of claim 10 wherein the oxide is etched using anisotropic reactive ion etching.

13. (Original) The method of claim 10 wherein etching the floor of the substrate comprises using a reactive ion etch.

14. (Original) The method of claim 13 wherein the reactive ion etch comprises a CHF_3 reactive ion etch.

15. (Original) The method of claim 10 wherein the semiconductor substrate is single crystal silicon.

16. (Currently Amended) A method of forming multiple two level structures in a semiconductor substrate, the method comprising:

lithographically forming a pattern having structures of different widths, the structures extending up from a first floor of the substrate;

oxidizing the structures on the substrate until lines of structures of a selected width are substantially fully oxidized and wider structure are not fully oxidized;

CHF₃ reactive ion etching the oxide to expose the first floor; and
selectively etching the first floor deeper into the substrate to form a second floor.

17. (Currently Amended) A method of forming a comb actuator in a semiconductor substrate, the method comprising:

forming pillars of alternating thick and thin widths extending from a first floor of the substrate;

oxidizing the ~~pillars~~wafer until pillars of thin width are substantially fully oxidized and thicker lines are not fully oxidized;

etching the oxide to expose the first floor;

etching the first floor deeper into the substrate to form a second floor; and
releasing the comb actuator.

18. (Original) The method of claim 17 and further comprising removing the oxide and repeating oxidizing, etching and etching to form a further level of the multiple level structure.

19. (Original) The method of claim 17 and further comprising forming contacts to independently couple sources to the respective thin and thick lines.

20. (Original) The method of claim 17 wherein the thin and thick lines comprise comb fingers with a gap of between approximately 0.3 and 10 microns.

21. (Currently Amended) A method of forming two level structures in a semiconductor substrate, the method comprising:

forming lines of different widths having a first floor;

oxidizing the ~~lines~~wafer until lines of thinner width are substantially fully oxidized and lines of thicker width are not fully oxidized;

etching the oxide to expose the first floor;

etching the exposed first floor deeper into the substrate to form a second floor; and releasing the lines to form suspended structures.

22. (Original) The method of claim 21 wherein releasing the lines comprises:
oxidizing the lines; and
etching the substrate in all directions.
23. (Original) The method of claim 22 wherein etching the substrate in all directions comprises a SF_6 reactive ion etch.
45. (New) A method of forming multiple two level structures in a semiconductor substrate, the method comprising:
lithographically forming a pattern having structures of different widths, the structures extending up from a first floor of the substrate;
oxidizing the structures on the substrate until structures of a selected width are substantially fully oxidized and wider patterns are not substantially fully oxidized;
anisotropically etching the oxide to expose the first floor; and
selectively etching the first floor deeper into the substrate to form a second floor.
46. (New) The method of claim 45 and further comprising removing the oxide from the lines to form a two level structure.
47. (New) The method of claim 46 and further comprising releasing the two level structure.
48. (New) The method of claim 2 and further comprising releasing the lines to form a released two level structure.
49. (New) The method of claim 11 wherein with each successive oxidation, mechanical structures are formed on a new level.
50. (New) The method of claim 49 wherein the successive oxidations are performed to consume lower levels previous formed and create one new level.